

FOREWORD

These *Conference Proceedings* provide a clear and objective account of *Expanding Opportunities in Oceanic and Atmospheric Sciences: A Conference to Strengthen Linkages Between HBMSCUs, NOAA and Graduate Studies in Marine and Atmospheric Fields*. The conference was held at the Richard A. Henson Center of the University of Maryland Eastern Shore (UMES) in Princess Anne, Maryland on March 29-31, 1999. The event was sponsored by the line offices of the National Oceanic and Atmospheric Administration, including the National Marine Fisheries Service, National Weather Service, National Environmental Satellite, Data, and Information Service, National Ocean Service, and the Office of Oceanic and Atmospheric Research. Co-sponsors were the University of Maryland Eastern Shore, National Association of State Universities and Land-Grant Colleges, National Association of Marine Laboratories, American Society of Limnology and Oceanography, and the National Association for Equal Opportunity in Higher Education. Nearly 250 individuals from state and private agencies, majority and minority colleges and universities, government agencies, and other oceanic, atmospheric, and environmental science institutions participated in the conference.

This conference is significant in several ways. First, it is a follow-up and extension of the work begun by the first *Expanding Opportunities Conference* held in 1995. Second, it marks the first time that all the line offices of NOAA, along with the Department of Commerce itself, have joined together to address issues of diversity. Third, the large number of participants—almost three times as many as attended the first conference—indicates that issues of diversity and true equal opportunity are crucial for all in our schools and businesses, and, more generally, in society and our nation. Thus, conference participants came to work actively on developing strategic actions to expand diversity and opportunities for individuals from traditionally underrepresented ethnic groups in the marine, atmospheric, and environmental fields.

In commissioning this document, the Conference Steering Committee hopes that it will serve not only as a source of information about the conference, but also as a call to action. To meet the challenges of the 21st Century, America must mobilize and take full advantage of all its human resources. This means that the American workforce who contributes to oceanic, atmospheric, and environmental sciences must be representative of the diversity that is present in American society. As minority underrepresentation in these fields is a complex and pervasive issue, a simplistic approach to increasing the numbers of minorities in the occupational and educational sectors will not work. What is needed to produce a workforce which reflects the diversity in the general population are long-term, system-wide, and permanent changes. The implementation of such fundamental changes is essential to attract, educate, employ, and retain minorities in the occupational and educational sectors.

This document may serve as a resource for policymakers in educational and occupational sectors, educators at all levels, historians, and other parties interested in expanding opportunities for minorities in the marine and atmospheric sciences. In addition, many of the issues discussed and recommendations which emerged during the conference reflect broader social, political, and economic issues related to minority funding, support for structural change, and retention of

minority employees. Consequently, the document has potential utility and relevance that extend beyond this conference to individuals, groups, and organizations who share an interest in and commitment to increasing the participation of traditionally underrepresented minorities in the oceanic, atmospheric, and environmental sciences.

The conference produced a number of substantive and far-reaching discussions, recommendations, and subsequent actions. While details of these are presented in the body of this report, the themes and concerns that were raised most frequently are highlighted below.

The Need for Communication and a Centralized Information System

Communication remains a key strategy for expanding opportunities for HBMSCUs. It is vital for attracting and retaining minorities in the sciences. Individuals must know what the marine and atmospheric sciences are, what NOAA does, what job opportunities are available, and how the majority and minority institutions can educate them in these fields. Within HBMSCUs and NOAA, communication must be centralized so that new advances in these scientific fields, employment possibilities, and funding opportunities are accessible to all. HBMSCUs must be afforded the same level of communication that majority schools specializing in these areas now receive.

The Need for Shared Responsibility

Federal funding alone cannot significantly increase diversity in the educational and employment sectors. All institutions and all individuals must do their part. Minority institutions must keep up with advances in sciences and technology; NOAA must allow for faculty-research exchanges; the Department of Commerce must enable NOAA to increase the number of contracts to minority-owned businesses; students must act as spokespersons for their chosen profession. This is just a partial list of how responsibility must be shared.

The Need for Increased Collaboration

Increased collaboration among the private sector, government agencies, and academia allows for shared policies, effective and current research, and integrated programs to increase diversity. These partnerships and collaborations must be designed to be equitable, long-term, mutually-beneficial, and to maximize the combined strengths of all involved parties.

The Need for Flexible and Creative Solutions

Increasing diversity means expanding our own ways of thinking beyond simple, traditional approaches. Churches and community groups can be called on to publicize the mission. Contract positions, short-term employment, and non-science positions—particular those specialized positions in the social sciences—must be used to expand opportunities for minorities. Private companies may partner with HBMSCUs and federal agencies to conduct research and development. Corporations may provide the equipment to HBMSCUs to update research facilities. Field trips for minority secondary students may be sponsored to provide important

exposure to the marine sciences. In addition, we urge that individuals, groups, and institutions devise and capitalize on a wide variety of mechanisms—formal and informal, spontaneous and systematic, ad-hoc and long range—to achieve true sustainable diversity.

The Need for Sustainable Change

It is crucial that mechanisms by which change is sustained and maintained are established. Any proposal for change must clearly specify ways by which true strategic transformation will become self-sustaining, and a part of the permanent educational, cultural, and administrative infrastructure. This is why diversity effected through legal means is usually successful, since federal law will ensure its continuation.

The Need for Increased Funding and Infrastructure Change for HBMSCUs

The allocation of funding and resources for HBMSCUs must be significantly increased. To increase funds, all parties must advocate for earmarking resources to explicitly support the strategic goals of HBMSCUs. Increased funding supports the needed changes in the institutional capacity and infrastructure of HBMSCUs to develop, expand, and maintain quality research facilities, to keep faculty and curricula current and responsive to the needs of the oceanic and atmospheric sciences, and to ensure long-term, continuous development.

The Need for Long-Term Strategic Planning

We must formulate a strategy for increasing diversity which is connected to the overall mission of participating organizations and institutions. This strategy would lay out, in concrete terms, what the key issues are, how they will be approached, what resources are available, and when these changes will be implemented. This long-term strategy must be in tandem with a full examination of the budgets, fiscal, and administrative policies of the participating organizations and institutions to identify those policies which hinder diversity.

The Need to Ensure Full Diversity

Changes must be made in the allocation of individuals and groups to specific positions and tasks within the educational and occupational sectors. These changes will allow minorities to be employed not only in all levels of the oceanic and atmospheric sciences but also in numbers significant enough to sustain and promote a culture of true diversity.

The Need for Moral Commitment

Expanding diversity must be seen as part of a larger moral issue. We can present a stronger case for diversity—to the Congress, to our colleagues, to other institutions, to the public—if diversity in the sciences is regarded as one way to affirm human equality and dignity and to recognize and draw upon our national strength.

ANDREW ROSENBERG, PhD

Deputy Assistant Administrator for Fisheries
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PREFACE

The proceedings of a second conference in the Expanding Opportunities effort, this time held on the campus of the University of Maryland Eastern Shore, are as emblematic as the first of our continued resolve to increase minority involvement in the fields of atmospheric, oceanic, and environmental research, science and graduate education. This holds true for both the educational and occupational sectors where the numbers of minorities engaged in these fields are very low compared to the dominant population. Indeed, the conference revealed how vast a gulf still separates minority and majority participation in scientific fields which NOAA depends on to meet its mission and honor the public trust.

It is only a scant four years since the Expanding Opportunities Conference held at Hampton University (HU), and just three years since the Savannah State University (SSU) Workshop where we thought there were opportunities on the immediate horizon for changes in NOAA and graduate institutions with disciplines in atmospheric, oceanic, and environmental sciences. Excitement was in the air over the heightened possibility for an Oceans Act and the impending boards that would have, as part of their trust, advisory responsibilities for budgetary and policy issues related to all aspects of the Oceans. During the four years, we have continued to be persuasive in our support for inclusion on boards, councils, committees at every level of power. We now have African-Americans on the NOAA Science Advisory Board, and there are African-Americans and other minority men and women serving on the Marine Fisheries Advisory Committee (MAFAC).

We wished, no matter how unrealistically, that a report could have been issued to participants of the UMES Conference, proclaiming that all the recommendations from the first conference proceedings had been met and the slate was clean for fresh ideas and recommendations. Our challenge and obligations, however, still remains. We must continue, as Dr. Spikes, President of UMES suggested, to keep making progress and to continually change our infrastructure to stay in, if not ahead of, the race. There has been small but steady support for minority students at all rungs of the ladder of higher education for course work, internships, and experiential opportunities such as attending and presenting at professional and technical societies. There has been concerted effort, although comparatively very small, on the part of some Line Managers to provide sustained support, support which has added to the capacity of a few HBMSCUs to participate in and contribute to NOAA's programs: Hampton, Clark-Atlanta, Savannah State University, Florida A&M University, University of Maryland Eastern Shore, Delaware State University, Howard University, South Carolina State University, Jackson State University, Morgan State University, University of Puerto Rico and Tribal colleges.

In keeping with the conference theme *Too Few to Count and Promises Yet to Keep* we are convinced that a radical change can occur in NOAA Commerce and in academia with the leadership and commitment to do the right thing, and we are inspired by individuals like U.S. Department of Commerce, Deputy Secretary Robert Mallett and Chairman of the White House Initiative Advisory Board on Historically Black Colleges and Universities, Dr. Earl S. Richardson. These two leaders in synergy with conference planners provided a set of lucid and

cogent questions to stimulate and guide discussions, debate, and action. The able panelists included the top leadership in NOAA, other federal agencies, universities and industry, and, conference participants represented various sectors of disciplines and employment including students, educators, scientists, managers and business persons. All of these people helped to raise our expectations for, and our commitment to, far greater achievement in NOAA's race for meaningful diversity in the 21st Century. We all hope to begin the new century with our dedicated and unceasing pursuit for true opportunity for all in our country and in the world.

These proceedings are structured to capture the tone of discussion energized, informed, developing, and broad in scope. They reflect the issues, concerns, and information brought to the table by participants, and they focus on specific recommendations. They begin with a Foreword meant to be comprehensive in scope, and compelling and the provocative addresses by keynote speakers. The step-by-step working aspect of the conference, where time was made for in-depth exchanges of information, began with a series of eight panel discussions focusing on a range of topics, including "Opportunities in Marine and Atmospheric Sciences Then, Now, and Beyond Y2K" and "Building and Expanding Sustainable Alliances Between HBMSCUs and NOAA." Three working groups looked at issues particular to atmospheric, oceanic/marine, and coastal/limnological sciences while reviewing the current relationships between NOAA and academia, particularly those with the HBMSCUs. Working lunch periods provided the time for free discussion, networking, and visiting classes at the University of Maryland Eastern Shore. One of the highlights of this conference was the sheer magnitude and presence of the invited student participants, who at the poster session were the center of attraction, surrounded by NOAA posters and exhibitors.

I should like to think that these proceedings reflect and transmit something of the commitment of NOAA to break the prison of inequality.

AMBROSE JEARLD, JR., PhD

Chairman, Steering and Conference Committees

ACKNOWLEDGMENTS

This conference was conceived, planned and sponsored by the line offices of NOAA including the National Marine Fisheries Service, National Weather Service, National Environmental Satellite, Data, and Information Service, National Ocean Service, and the Office of Oceanic and Atmospheric Research along with the University of Maryland Eastern Shore. Other sponsors include the National Association of State Universities and Land-Grant Colleges, National Association of Marine Laboratories, the American Society of Limnology and Oceanography, and the National Association for Equal Opportunity in Higher Education. It was hosted at the University of Maryland Eastern Shore.

As with most ambitious activities, there is a cost, and someone needs to give the final go-ahead. In this case, we are grateful to both Dr. Andy Rosenberg and Mr. Scott Gudes. We thank the NOAA and NMFS Administrators for their support, and we thank the co-sponsors and endorsing organizations.

Special tribute is due to Dr. Emorcia Hill who raised the importance of and who followed through with drafting a set of guiding questions to build a framework for the conference and, more importantly, to serve as a focus for each session and the expected outcome. She spent countless telephone hours, nights, entire days and weekends assisting in building the conference announcements, agenda, program, facilitating the conference, as well as chairing sessions, transcribing and developing minutes of meetings. Her post-conference commitment and contribution have been just as enormous in time, writing and editing, and participating in meetings to follow up on recommendations.

I am grateful to Ms. Denise Peloquin who transcribed the tape recordings of the conference sessions and typed draft after draft as they were filled in from notes by several individuals and from reports. Ms. Peloquin assisted me with assembling all the tape recordings, my notes and those from other individuals (Ms. Donna Johnson, Dr. Maurice Crawford, Dr. Sheila Stiles, Dr. Livingston Marshall, Dr. Emorcia Hill, Dr. Carolyn Brown) along with the reports from session moderators duplicating, collating, binding, switching between different word processing programs. Then there is the gratitude for all of the panelists who took time to review and edit for accuracy the transcribed and synthesized version of their oral presentations at the conference. The final version I take responsibility for any errors either because of omission or commission on my part.

As with all undertakings, such as doing this conference, there are the unusually talented groups of professionals and scholars that provide the extra eyes, ears, legs, and minds to get the job done. Ms. Helen Mustafa is due thanks for helping as my assistant in getting the project off and running. Her untimely illness was felt by all and was a set back for me personally. The great news, however, is that she fully recovered; not in time to attend the conference but in time to help with the proceedings. At times, my office has been full force on the proceedings under Helen's management. Ms. Teri Frady, Mr. Jon Gibson and Ms. Laura Garner of the NEFSC Communication staff added depth and breadth to the conference and proceedings. Special thanks

to Ms. Teri Frady for the final touches on the conference program and to Ms. Laura Garner for her very helpful editorial and structural recommendations for these proceedings. We are grateful to Dr. Sheila Stiles, Ms. Donna Johnson and Dr. Kelly Mack for their hard work in developing, organizing and managing the Poster and Exhibit session from contacting and getting participants to submit entries to putting them up and forming an awards judging team (Dr. Carolyn Brown, Ms. Donna Johnson, Dr. Mack Felton, Mr. Harold Foster, Mr. Dennis Hansford and Dr. Sheila Stiles) for best student poster presentations. Dr. Carolyn Brown helped with the staging of posters as well. We are grateful for the able and unselfish assistance given to facilitate the conference in unimaginable ways behind scene and out front by what I affectionately refer to as our damage control team: Equal Employment Office (EEO) and Diversity Officers, particularly Mrs. Natalie Huff. To the Henson (Hotel and Restaurant School) managers and staff and the students who put in long and extra hours because of demands, we overbooked the conference and to the NEFSC Procurement staff and the contract administrators at UMES, we thank you.

Special recognition is due Dr. Joyce Payne and the entire Office of Public Black Colleges staff for their hosting meetings, often on short notice. Moreover, for Dr. Payne's extraordinary sagacious and insightful leadership in managing matters of inclusion from a historical and current context. And, for her critical insight and tactful support in building institution-to-institution relationships, and for exceptional expertise in congressional affairs.

I am particularly grateful to and thank Ms. Emily Miller who, through some special magic, but most assuredly due to her intellect and talent as a writer and editor, pulled all the voices and written pieces together into a coherent, clear and lucid proceedings. Her service has been invaluable.

A tremendous amount of gratitude goes to all the planning committees inside NOAA and at UMES. The Conference Steering Committee is as follows:

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James H. Arrington, South Carolina State University
Brian Bingham, Western Washington University
Carolyn Brown, National Marine Fisheries Service
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Benjamin E. Cuker, Hampton University
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Natalie Huff, National Marine Fisheries Service
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Julian Skip Wright, National Weather Service
Please see Appendix B for names of persons on both the NOAA and UMES Planning Committees.

We thank the fine speakers who came to this conference and offered us their wisdom: Mr. Robert Mallett, Dr. Dolores Spikes, Dr. Earl Richardson, Dr. Eucharia E. Nnadi, and Mr. Scott Gudes. We thank too all those who attended and participated in the conference.

Finally, for all of the panelists and working session chairs, and to the many, many more who go unnamed for your relentless support and inspiration.

